

WIRELESS NETWORK SERVICE PROVISION METHOD AND WIRELESS NETWORK  
SYSTEM

BACKGROUND OF THE INVENTION

This application claims benefit of Japanese Patent  
5 Application No. 2002-349445 filed on December 2, 2002, the  
contents of which are incorporated by the reference.

The present invention relates to a wireless network  
service provision method and a wireless network system, which  
are adapted to provide communication services including internet  
10 connection by permitting access to a predetermined access point  
in a limitative area via a local interface such as wireless  
LAN, for instance a hot spot.

So-called "hot spot service" is in practical use, which  
provides internet connection or contents services in particular  
15 places such as airports, hotels, coffee shops and fast-food  
shops. This is the provision of such services as internet  
connection as services with respect to a very limitative area  
by wireless techniques called local wireless interface such  
as wireless LAN and Bluetooth.

20 In such a hot spot, when performing communication via  
a local wireless service such as wireless LAN, a WEP key like  
those of neighbor users is usually used, thus readily making  
possible the wiretapping.

In the wireless communication in a closed environment  
25 such as home wireless LAN and enterprise wireless LAN, a method  
of providing a wireless communication device and a wireless  
communication method which can prohibit wiretapping and also  
a method of ciphering in order to prevent wiretapping from a

wireless section with a wireless LAN system have heretofore been proposed, for instance, Japanese patent laid-open 2001-345795 and 2000-31980.

Furthermore, it has been proposed to build a virtual  
5 wireless LAN system, in which means for managing the attributes of LAN terminals is provided in a home network side managing server, means for determining the attributes of the LAN terminals and means for determining the attributes of the LAN terminals on the basis of the determined results are provided in a remote  
10 network side movement destination server, and it is thus made possible to discriminate packets sent out from a virtual wireless LAN terminal to a wireless base station (Japanese patent laid-open Hei 10-173665, for instance).

Further, it has been proposed to realize a LAN system,  
15 on which packet data are ciphered by using scramble patterns each peculiar for each of a plurality of broadcast domain and sent out to each terminal. Each terminal deciphers the ciphered data by using a scramble pattern provided to the own broadcast domain, thus preventing production of a correct replica of a  
20 different broadcast domain packet data, if received, to eliminate the possibility of data leaks and permitting data exchanges between terminals belonging to each of a plurality of broadcast domains (see Japanese patent laid-open Hei 10-173692, for instance).

25 However, any of the above prior art proposals, although being excellent in view of perfectly eliminating the possibility of data leaks, are complicated and large in scale too much to be applied to recently spreading hot spot services or the like.

## SUMMARY OF THE INVENTION

An object of the present invention, therefore, is to provide a wireless network service provision method and a wireless network system, which, like the hot spot services,  
5 is fitted to communication services including internet connection in a limitative area, and in which the possibility of wiretapping is eliminated with a simple means.

According to an aspect of the present invention, there is provided a wireless network service provision method of  
10 providing communication services including internet connection by permitting access to a predetermined access point in a limitative area via wireless LAN or like local wireless interface, wherein, when a user subscribed to the communication service system accesses the pertinent access point, payload processing  
15 is executed in unique processing method to each user, and each user is discriminated based on data of the processed parts.

A plurality of payload processing methods capable of being used in the limitative area are prepared, and a processing method peculiar to each user is selectively adopted. One of a plurality  
20 of preliminarily prepared processing methods is randomly selected for the payload processing. The communication services are provided via a VLAN, to which a plurality of sub-networks are connected via a communication line. The communication services are provided in an area, which covers hot spot  
25 communication services of providing internet connection and contents services in a predetermined place. The communication services are provided by using data communication based on portal switch VLAN.

According to another aspect of the present invention, there is provided a wireless network system for providing communication services including internet connection by permitting access to a predetermined access point in a limitative  
5 area via wireless LAN or like local wireless interface, wherein, when a user subscribed to the communication service system accesses the pertinent access point, payload processing is executed in unique processing method to each user, and each user is discriminated based on data of the processed parts.

10 A plurality of payload processing methods capable of being used in the limitative area are prepared, and a processing method peculiar to each user is selectively adopted. One of a plurality of preliminarily prepared processing methods is randomly selected for the payload processing. The communication services  
15 are provided via a VLAN, to which a plurality of sub-networks are connected via a communication line. The communication services are provided in an area, which covers hot spot communication services of providing internet connection and contents services in a predetermined place. The communication  
20 services are provided by using data communication based on portal switch VLAN.

Other objects and features will be clarified from the following description with reference to attached drawings.

#### BRIEF DESCRIPTION OF THE DRAWINGS

25 Fig. 1 shows a schematic view for describing a wireless network service provision method and a wireless network system.

#### PREFERRED EMBODIMENTS OF THE INVENTION

Preferred embodiments of the present invention will now

be described with reference to the drawings.

Fig. 1 illustrates a schematic view for describing a wireless network service provision method and a wireless network system.

5           The wireless network system for carrying out the wireless network service provision method according to the present invention, constitutes a hot spot 10, which provides communication services including internet connections by making it possible to access a predetermined access point in a limited  
10   area via a local wireless interface such as wireless LAN.

          Specifically, the hot spot 10 provides communication services such as internet connection and contents services in limited places such as airports, hotels, coffee shops and fast-food shops by wireless techniques called local wireless  
15   interface such as wireless LAN or Bluetooth.

          In the hot spot 10, a plurality of users 21, 22, ... subscribed to communication service are provided such that they access predetermined access points (not shown).

          In the system according to the present invention, when  
20   the users 21, 22, ... access a pertinent access point, a payload process is executed by a process method each peculiar to each user, and each user is discriminated based on data of the processed part.

          As for the payload process method of the users 21, 22, ...,  
25   a method is applicable that a plurality of payload process methods used in the hot spot 10 in one area are preliminarily prepared, and that a process method peculiar to each user is applicable.

          As for application of the payload processing methods each

peculiar to each user, one of a plurality of preliminarily prepared processing methods is randomly selected for the payload processing.

5 In the hot spot 10, communication services can be provided via a VLAN (virtual LAN), to which a plurality of sub-networks are connected via a communication line. The VLAN is a theoretical (or virtual) LAN system, in which a plurality of sub-networks are interconnected via a communication line. In this embodiment, a virtual wireless LAN system using a wireless system is  
10 constructed as the access system of each terminal (or user).

With the above embodiment, each user has a payload of a different form, and it is possible to prevent intrusion or wiretapping of other users than the pertinent user in communication in the same hot spot.

15 In effect, the present invention is not only applicable to the so-called hot spot, but is also widely applicable to wireless network systems adapted to provide communication services including internet connection by permitting access to a predetermined access point in a limitative area via wireless  
20 LAN or like local wireless interface.

Changes in construction will occur to those skilled in the art and various apparently different modifications and embodiments may be made without departing from the scope of the present invention. The matter set forth in the foregoing  
25 description and accompanying drawings is offered by way of illustration only. It is therefore intended that the foregoing description be regarded as illustrative rather than limiting.

As described above, according to the present invention, it is possible to realize a wireless network service provision method and a wireless network system which is fitted to communication services including internet connection in a limitative area without the possibility of wiretapping.